Analysis of the determinants of Temporary employment in 19 European countries

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Abstract

This paper studies the determinants of temporary employment in 19 European. We show temporary employees work less than permanent workers with reference to working time, which reduces relatively their potential wages. Moreover, the probability of holding a fixed term contract is negatively correlated with trade-union membership and non-permanent workers are more sensitive to the need of strong trade-unions. From another hand, past unemployment is likely to reduce the likelihood of permanent job.

Finally, comparing part-time and temporary employment, we put forward some points of convergence: both work arrangement are more feminized, less syndicated, more involved in small establishments and have less hierarchical responsibilities. Nonetheless, part-time employment is more feminized than fixed-term contract. Age acts in the same sense, but fixed-term workers are younger than part-timers.

JEL Classification: J64, E32, C41; J41; J60

Key Words: temporary jobs, fixed term contract, permanent job, part-time

INTRODUCTION:

For more than two decades, temporary employment has shown an extensive development in the majority of OECD countries. On average, in the European economies, the part of fixed term contracts (henceforth FTC) grew from 5.5% in 1983, to 14% in 2005 (OECD, 2007). FTC, interim, on-call contracts and other work arrangements was created and developed. Several reforms led to an increase in the use of those contracts generating lower firing costs (Belot et al, 2002). The utilisation of new work arrangements aims to increase the labour market flexibility, reduce unemployment and to allow for an adjustment to an unexpected or

limited demand (Blank and Freeman, 1994). However, this can increase employment instability and reduce job security. Moreover, the growth of temporary employment generates a differentiating and unequal dynamics regarding employment characterized for many specialists by a *"strong economic vulnerability and a potential restriction of social rights since the latter are founded, mainly, on the employment stability"* (Paugam, 2000). Several approaches provided number of explanations of the development of FTC. Other studies based on micro data tried to identify the determinants of temporary employment. FTC can combine several specificities. In several countries, temporary jobs appear, on average, less qualified, less remunerated and less syndicated. This work arrangement often involves young people and women. However, a limited number of studies focused on international comparisons regarding this form of employment.

Basing on an international sample, our paper tries to compare the determinants of temporary employment in several European countries. We seek to show both similarities and differences in the determinants of FTC. Moreover, following a cumulative principle, we focus on differences related to work conditions and especially the connection between part time and fixed term employment.

This paper will be organized as follow: In the first section, we provide a review of literature on the determinants of temporary employment. In the second section, we present the data and the variables used in our empirical analysis. The third section is devoted to empirical results while the fifth concludes.

1. REVIEW OF LITERATURE:

Theoretical analysis apprehends temporary employment, either as a contractual form offering a method of adjustment regarding the fluctuations of activity, or as the outcome of dual labour markets. Some recent approaches stress the importance of FTC in the process of recruitment through permanent jobs.

At the same time, temporary employment is a way of entry into the labour market and a mode of adjustment for the employers, in a context of imperfect information, to determine workers' productivities. If this assumption on the selection process is fully confirmed, the relevance of long-term measurements on job security would be reduced. A non-permanent employment could appear as a period of specific training or integration within the firm. In this context, it should be perceived in a positive way by the majority of workers: FTC can be the first form of securitisation of employment tracks. Moreover, the necessity to combine this form of flexibility and job security would be reduced.

However, the assumption of a non-standard employment as a mode of pre-recruitment is partially validated. For a majority of temporary workers, limited duration employment is not considered as a mode of extending the probation period, and thus it can be associated with various forms of flexibility.

1.1. Temporary employment: traditional approaches and assumption of stepping stones

A limited number of theoretical approaches consider employment contracts according to their duration. The first approach developed by Gray (1978) endogenized the contract duration. The author analysed the use to intermediate work arrangements between permanent and spot contracts (Simon, 1951). Reconsidering Walras labour market framework, Simon (1951) defined the employment relation as a durable arrangement held between the employer and the employee. However, for spot contracts, the two parties choose to limit the relation to a fixed period. The terms of the contract are predetermined in the case of a FTC, even if it does not appear in this approach**.** Several analyses have dealt with limited duration employment.

Doeringer and Piore (1971) define internal labour market as an administrative unit in which pricing and labour allocation such as recruitments, mobility or earnings are driven by a set of organizational rules. Such rules are more or less formalized, specific to each firm, disconnected from the labour market and defining long-term employment. In this approach, employees look for job stability and firms tend to set their internal market by limiting the cost of job rotation, taking into account the external market to give them the required degree of flexibility. In opposition to this process of assignment and compensation, on the external labour market, earnings, training and time allocation depend on supply and demand adjustments. The use of FTC is a component of this secondary market that appears relatively hermetic. Accordingly, Piore and Doeringer (1971) propose an analytical framework of labour market segmentation even if this does not allow for explaining the assumption of FTC as stepping stones.

For Gray (1978), temporary employment enables to adapt to demand fluctuations. Within an uncertain environment, the contract length is the result of a trade-off between transaction-costs and hiring costs. While the employer defines the duration, the extension of labour contracts makes it possible to amortize hiring and firing costs as well as specific training. In the model developed by Canzoneri (1980), trade unions establish both contract length and wages, whereas firms choose their employment levels. Also an increasing uncertainty enhances hiring and firing costs which reduce the contract duration. However, after the two oil crises, the contract durations remained relatively stable (Danziger, 1992). Moreover,

basing on the implicit contracts theory Danziger (1992) shows that the length of temporary contracts is the outcome of risk sharing between employers and employees. According to the nature of shocks (real, nominal or relative), the contract duration is not uniformly affected. Furthermore, the extent of shocks seems to affect the contract length (Danziger, 1996). However, only the hiring costs and the intensity of the shocks and their variability can explain the choice of FTC, whereas workers' characteristics have no effect, which seems to be contradicted by the empirical studies. Like Piore and Doeringer (1971), these models cannot explain the assumption of temporary contracts as a stepping stone towards permanent jobs.

Several complementary approaches integrate the assumption of stepping stones. In a context of imperfect information regarding the effort level and the capacities to produce, the employer has limited information on the employees. The relation of interdependence between work arrangements is likely to induce a situation of adverse-selection (Lazear, 1995). This encourages employees to reveal their work productivity in the hope of recruitment on a permanent contract. For Harris and Holmström (1987), the labour contract duration allows the employer to adjust in a context of imperfect information, taking into account variations of workers' productivities. This model shows that the contract duration is established according to the number of periods required to reach the compulsory level of productivity. The more the interval is tightened, the more the contract duration lengthens. However, the deadline cannot be set by the employer because he has to observe beforehand the employees' productivities. Accordingly, Guriev and Kvasov (2005) introduce costs linked to the breach of the contract and to the renegotiation. In this model, a distinction is made between the contract length and the duration of agreement between the contracting parts. The contractual duration enables to integrate information on the specific investment carried out by the contracting parties and on the evolution of external options. However, the contract length is given ex post in this model.

1.2- Temporary employment: a stepping stone towards permanent job?

Over the last two decades, more than one third of European workers are recruited through non-permanent work arrangement, of which the half on FTC (OECD, 2002). Non-standard employment aims to adjust demand fluctuations and their unpredictable nature such as illness or absenteeism, to reduce labour costs or to find workers with rare or specific competences needed for a short period or for specific projects (Everaere, 1999). Certain approaches analyzed the implications of FTC from several perspectives. On the one hand, non-permanent employment can be considered as a method of entry on the labour market (Engellandt and Riphahn, 2005). On the other hand, two advanced assumptions are opposed: that of a

temporary activity like job shopping and that of stepping stones towards permanent jobs (*job shopping versus stepping stone*).

In the first case, FTC can be deliberately chosen. In several countries, certain temporary work arrangements offer particular advantages in terms of remuneration or trade-off between work and leisure. This effect of selected flexibility can result from a bargaining power favourable to workers according to their characteristics. In the second case, non-standard employment enables employers to filter the upcoming permanent employees. This work arrangement can be used at labour market entry as a selection process or of stepping stones. Empirically, the assumption of FTC as a stepping stone to permanent jobs was the subject of several studies.

For the United Kingdom, Booth et al (2002) partially confirmed the assumption of stepping stones, followed by an increase in wages and welfare benefits. Over a 7 years period, approximately 38% of non-standard workers go towards permanent jobs after the term of their temporary contract. This positive inciting effect of FTC does not characterize all the types of non-standard work arrangements. Temporary employment by its nature (i.e. seasonal workers) is distinguished from the non-temporary activities. There are strong differences in the transitions in term of wages and satisfaction. The authors underlined the importance of local conditions of employment (in particular unemployment/vacancy ratio). With a duration model, Güell and Petrongolo (2007) analyze the determinants of the conversion of temporary contracts into permanent jobs in Spain. The conversion rates are generally lower than 10%: the rate grows with the contract duration with a pick at the legal bound of the contract when it is not possible to retain the worker on a temporary job. The differences in conversion between the categories of workers rise from differences in exit options. Nevertheless, the rates of transition from FTC towards permanents jobs appear relatively weak in Spain (Amuedo-Dorante, 2000). The conversion rates are weaker for less qualified workers and grow with seniority, while men have higher conversion rates (Engellandt and Riphahn, 2005). Güell and Petrongolo (2007) distinguish between entry into and exit from temporary jobs: in the Spanish case, the probability of accession to permanent job is higher for those on temporary work arrangements than for the unemployed (for the US case, see Farber, 1999). Güell and Petrongolo (2007) find that the conversion rates of temporary contracts into permanent jobs increase with age.

For Italy, the transition probability from a FTC to a permanent job increases with the contract duration, but decreases with repeated temporary employments, in particular with job interruptions (Gagliarducci**,** 2005). Nevertheless, one has to keep in mind that it is not temporary employment itself, but the intermittency which is detrimental to employment. For a

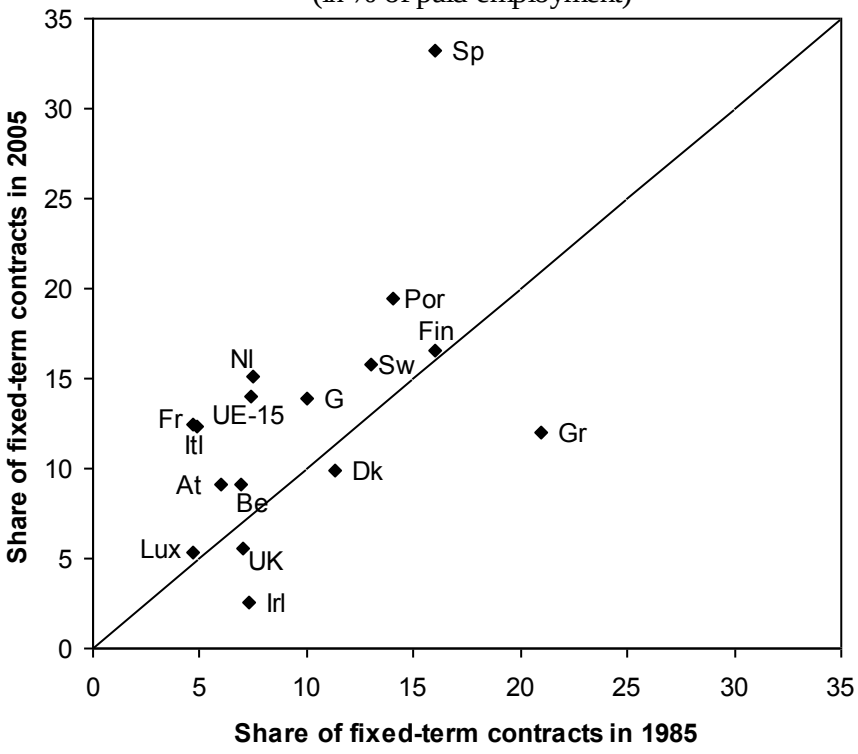
long temporary contract the probability of conversion first increases and decreases thereafter. Van Ours (2004) analyzes the locking-in effects of subsidized temporary jobs using a natural experiment of the Slovak labour market. He shows that if subsidized employment holds for long time, workers reduce the intensity of their job search. Hagen (2003) and Hagen and Boockmann (2005) confirmed the assumption of partial probationary period for Germany. For Switzerland, Engellandt and Riphahn (2005) found that 26% of non-standard wage-earners sign in temporary jobs after the end of their contract.

In France, temporary contracts became for many firms the usual method of recruitment. They represent the privileged instrument of short-term adjustment but also of the conversion of unstable jobs into unstable careers (Goux, 2000). In France, the length of temporary jobs positively affects the matching probability on the labour market when this one is not interrupted by inactivity or a layoff (Bunel, 2007). The rates of access to stable employment are less different according to the age than the diploma. For CERC (2005), France is distinguished within the European countries, by weak transitions from the temporary contracts towards permanent work arrangements. Within the French labour market, 25% of workers who were in temporary jobs in 1999 are in permanent posts one year later. For the EU countries, only Spain (25%) and Portugal (10%) have lower rates of transition. However, the rates of transition are about 55% in Austria, in Ireland and in the Netherlands; and 50% in Belgium and 45% in the United Kingdom (CERC, 2005).

France can be ranked among a group of countries, with Spain, Finland, Portugal, Greece and Italy, where the access to FTC are rarely a stepping stone towards permanent jobs. On the short run, the persistence in temporary employment is thus strong in Portugal, France and Spain. The southern European countries show high levels of temporary employment and offer less transition towards permanent jobs than northern European countries (Muffels and Luijkx, 2005). On the long term, the position of France becomes more favourable: nearly 60% of workers, who were in temporary contract in 1995, had a permanent job in 2000. This part remains lower than 50% for Italy, Spain, Portugal and Greece (European Commission, 2003). Nevertheless, in France as in Spain or Finland, the risk of unemployment, five years after having occupied a temporary employment appears relatively high.

Figure 1 Evolution of fixed-term contracts in Europe between 1985 and 2005

(in % of paid employment)



Source: OECD (2007)

Temporary employment is a pattern of entry into the labour market. However, the assumption of a non-standard employment as stepping stones is partially confirmed. It depends on the national settings. Accordingly, the implementation of measures towards more job security seems required.

In what follows, the relationship between temporary employment and sociodemographic determinants as well as work conditions will be analyzed. We will also compare two forms of atypical employment in order to understand both specificities and differences of each work arrangement.

2. DATA AND DESCRIPTIVE STATISTICS:

2.1. The European Social Survey:

The data used in this study are from the first wave of the European Social Survey (henceforth ESS). The sample counts 42.359 individuals from 19 countries[1]. This wave provides more

[1] Austria, Belgium, Switzerland, Germany, Denmark, Spain, Finland, France, United Kingdom, Greece, Ireland, Iceland, Italy, Luxembourg, Netherlands, Norway, Portugal Sweden and Slovenia

than 500 questions regarding employment, work conditions, and socio-demographic characteristics of individuals and their households. Several questions refer to the labour market activity. In addition, the ESS provides information on individual behaviours and beliefs in the European countries. The sample includes active wage-earners of more than 15 years old. This leaves us with 37964 observations. In the ESS, individuals are questioned on the nature of their employment contract (FTC or not). Among the wage-earners, a binary variable is defined to give us information about the temporary work. We use a set of probit models in order to establish the explanatory factors of temporary employment. The endogenous variable is "holding a FTC" in opposition to "holding a permanent job" considered as situation of reference. The explanatory variables are related to individual and family characteristics of wage-earners.

Basing on this international sample, the determinants of fixed term employment will be analyzed. This will allow us to capture similarities and differences in temporary employment between European countries.

Given the qualitative nature of our endogenous variable, the traditional methods of inferences based on linear specifications cannot be adopted. Models with qualitative variables enable in this case to take into account discontinuity of the dependant variables. The explanatory factors selected are the followings: gender, age, the household size, the marital status (with 4 modalities), the size of sibship (with 4 modalities), the level of education (with 4 modalities), the socioeconomic status (basing on the general Nomenclature of the Economic activities in the European Communities) and the geographic location (with 4 modalities), the citizenship, additional working time, the unemployment period, the trade-union membership, hierarchical responsibilities, the establishment size and the extent of work organization

2.2. Descriptive statistics:

Table 1 suggests that gender differences in employment status are more unfavourable to female workforce. While gender differences in permanent employment is about 2 points, FTC are more feminized with 6 points higher for women. Being immigrant doesn't affect considerably the employment status where almost 4.4% of immigrants hold permanent jobs and 5% work on temporary work arrangement.

Regarding age, older workers are less affected by temporary employment. However, the rate of young employees in FTC exceeds 25%. In addition, temporary jobs are often held by single workers and individuals without children, whereas approximately 60% of married workers are in permanent positions.

For geographic location, the shares of the two work arrangements are very similar even if higher rates of employment are observed in rural areas. For educational dummies, secondary education is the most employable for both permanent and temporary employments. Finally, for work conditions, temporary employment is less involved in trade union membership and temporary workers are more likely to appreciate the presence of strong trade-unions.

3. EMPIRICAL ANALYSIS:

3.1. Sociodemographic determinants of temporary employment:

Table 2 summarises the analysis of socio-demographic determinants of FTC in 19 European countries. In the whole sample, temporary employment is more feminized. Women are more involved in the idea of flexibility. In France, men are more often in temporary and casual jobs while women are more likely to hold FTC (Brunet, 2003). This result is confirmed at the European level (Stener Pedersen et al, 2004). In France, the probability of holding permanent job after an episode of temporary employment is relatively lower for women (Bunel, 2007). Gender difference in temporary employment can arise from a female specific behaviour. Women are more likely to work on temporary arrangements: this tendency can result from the high propensity of women within public and tertiary sectors (Booth et al, 2002; Lazear and Rosen, 1990).

Another explanation can be associated with the types of "female jobs". The economic sectors with the important shares of female workers are those where non-permanent employment is the most common. This structural effect can explain gender differences. Nevertheless, the importance of the national context should be put forward. The gender control is significant only in a half of the countries studied. For all the southern countries (Spain, Italy, Portugal and Greece) and in almost all northern economies (Sweden, Norway, Netherlands, Finland, except for Denmark), temporary employment appears more feminized (see table 2a).

Moreover, temporary employment is inversely correlated with age: the profile of this last control takes an inverted U-shaped. However, the minimum is around 66 years. Such a work arrangement also involve the youth (Gasparini et al. 2000). This result partially supports the assumption of temporary employment as stepping stones to permanent jobs. Furthermore, the marital status negatively affects the probability of holding a FTC while the household size increases it. The marriage is a protection from temporary work in southern and continental European countries (Austria, Switzerland, Germany, France, Italy, and Portugal except for Belgium, Spain and Greece). For France, our results confirm an association between fixed term employment and celibacy (Cottrell et al, 2002). Alternatively, the presence of children is

conversely connected with the probability of holding a FTC. A permanent job can be a factor supporting the choice to have one or more children. Accordingly, the presence of one child can be perceived like a signal favourable to a more stable work arrangement for an employer.

Education is appears a key factor for the probability of holding a FTC: in particular, low levels of education positively affect the likelihood of holding a temporary job. This result is relevant for all European countries (Pedersen et al, 2004).

Ceteris Paribus, the probability of holding a FTC is reduced, from approximately 45% for primary education compared to the absence of diploma, from 67% with a secondary level and from 63% with tertiary level. The educational level is generally lower for non-permanent workers, even if this depends on the flexible forms of work: temporary workers tend to be less qualified whereas the majority of the on-call and permanent workers have more training levels. For France, we do not find a significant effect of education. Nevertheless, permanent part-timers are more educated and more qualified than workers holding FTC (Cottrell et al, 2002). However, little difference is observed for the United Kingdom between the two last work arrangements, although on average temporary employment is less qualified (Booth et al, 2002). A tertiary level of education increases the probability of holding a permanent job. This effect is confirmed for Germany, Finland and Sweden. In these countries, temporary employment is often devoted to workers with rare or particular skills required for a short period or specific projects.

For the economic activities, the ESS utilizes the general Nomenclature of the Economic activities in the European Communities (NACE). Temporary employment is positively associated with agriculture, hunting and fishing, reflecting a rather seasonal employment. The probability of holding a FTC increases for tertiary sector. In Europe, temporary employment is relatively frequent in service sector, food industries and construction (Stener Pedersen et al, 2004). Conversely, the probability of holding a non-permanent job is lower in manufacturing industries, transport and communications, financial intermediation.

The analysis confirms for several countries (Belgium, Germany, Denmark, Spain, France, Italy, Norway, Portugal and Sweden) the positive effect of agriculture on the probability of holding a FTC. Construction dummy is positively correlated with non-permanent employment in particular for Spain (confirming the results of Dolado et al, 2002; Gagliarducci, 2005), whereas Italy is characterized by a strong tendency to this work arrangement for the hotel and restaurant sector. Globally, in spite of a growing development in a variety of sectors, temporary jobs are particularly spread in services sector.

Finally, temporary employment is concentrated in big cities. While living in rural regions reduce the probability of holding FTC. The presence in urban areas has a positive impact on the probability to work temporarily only for women. One explanation could arise from sectoral differences. If the density of population is high, the possibility of finding a permanent job is likely to decrease.

3.2. Work conditions of temporary employees:

Table 3 informs about the characteristics of workers on FTC regarding their working conditions and their professional tracks. Temporary employees seem to work less than permanent workers with reference to working time, which reduced relatively their potential wages. Among full-time workforce, temporary employees make less overtime work in France (Cottrell et al, 2002). For Switzerland, temporary workers provide higher effort than permanent employees: their probability of unpaid overtime work exceeds that of permanent workers by 60%, characterizing an effort to integrate an established post (Engellandt and Riphahn, 2005).

Temporary employees are more likely to work in part-time[2]. In France, non-permanent workers seem to work less than those holding permanent jobs (Cottrell et al, 2002): the temporary part-time jobs is particularly spread among young and single women. This seems similar for the European level (Daubas-Letourneux, 1998). A part-time activity generally offers a weak level of earning.

Moreover, the probability of holding a FTC is negatively correlated with trade-union membership. All things being equal, being syndicated reduces the probability of working on a fixed term arrangement by 25%. However, non-permanent workers looked favourably upon the necessity for having strong trade unions.

The probability of holding a FTC is multiplied by nearly three (2.93) if the employer met an unemployment period during the last 5 years. A joblessness episode leads to a decline in the future probability to find a permanent job. Unemployment can be perceived as a period of human capital desaccumulation. Frequent employment changes are likely to generate a depreciation of human capital stock, reducing the specific productivity (Arulampalam, 2001). Thus, unemployment provides a negative signal to employers about lower unobservable workforce productivity (Gibbons and Katz, 1991). However, according to the assumption of stepping stones, temporary employment, less qualified on average, appears as a means of

[2] Part-time workers are those who work less than 30 hours a week; following the OCDE definition

generating specific competences to the firm before recruitment on permanent work arrangements.

The autonomy of temporary employees appears relatively reduced. Holding a FTC implies low influence on work organization (Daubas-Letourneux, 1998). At the European level, temporary workers seem to have less control on the tasks organization, working methods or the rhythm of work (Merllié and Paoli, 2001).

Furthermore, the influence on work organization is weak in the case of fixed term employees compared to permanent ones. The use of flexible workers seems to induce a reorganization of work while the internal division of work is increased (Goudswaard and Nanteuil, 2000): there is a relation between quantitative flexibility and the organisational change. Temporary employees appear relatively less involved in functional flexibility. .

To sum up, the expansion of temporary employment is important for the analysis of labour market evolution. It is thus crucial to put forward the determinants of FTC and especially if this form of atypical work arrangement leads to a growth in overall employment or whether it interact with others forms of employment.

Accordingly, it is also important to consider which forms of atypical employment are available and whether other work arrangements can interact with FTC. A particular focus should be given to part time. To answer this question, we also study the similarities and the differences between part time and temporary employment.

3.3. Part-time employment and fixed term contract

As another variety of work flexibility, part-time work concerns directly wage-earners and some trade-off between part-time and temporary employment is possible. In this section, these two kinds will be compared through bivariate Probit regression.

Fixed-term contract can be distinguished from part-time by several ways. This latter frequently involves citizens of the country. Conversely, immigrants are usually in fixed-term employment. Family composition greatly differs between part-time and fixed-term contracts. While part-timers are more frequently married, temporary workers generally belong to non-standard family structures (separated, divorced, widowed or never married). Moreover, fixed-term workers are less educated.

Part timers are more involved in overtime work is often whereas temporary workers met more frequently unemployment period during the last 5 years. Moreover, part-timers frequently work in services sector such as retail trade, education sector, health and personal services.

However, some points of convergence characterize the two work arrangements. Women are more frequently involved in these two kinds of flexibility even if part-time is more feminized. Alternatively, but fixed-term workers are younger than part-timers and domicile location has no impact on probability to hold part time or temporary job.

These two work arrangements are less syndicated and have less hierarchical responsibilities. They are more frequently concentrated in small establishments.

While part-time workers have a higher degree of freedom to organize their own work than fixed-term employees, this is less frequent than that of permanent employees. Finally, except for Great Britain and Netherlands, these two types of flexibility are generally inverted.

Given the different effects, a positive correlation coefficient is observed between two forms of employment. This result shows a greater probability to cumulate fixed-term contract and part-time employment in Europe.

To conclude, the anemic European labour market has led to significant evolution of both offer and demand. Accordingly, new forms of work arrangements become recurrent with employees working on temporary or part-time schemes. Several experts suggest that the new patterns of work will focus on keeping labour costs down through a combination of temporary and more part-time jobs. Even if business confidence has improved in recent months, this is still fragile and employers remain cautious about adding to their long-term cost base. However, a major threat European economies should avoid, that of moving towards a "low-wage, low-productivity" economy. "More people are working more hours, but productivity is less. The labour market is recovering but are we coming out of recession into a new trajectory which is a lower-productivity and lower-wage economy than we had before? Are we now seeing the effect of years of underinvestment in skills and capital? In such a case, the European Union should play a growing role to adjust supply and demand and to streamline the labour market

4. CONCLUSION:

In this paper, we analyzed the determinants of FTC in several European countries using the *European Social Survey*. Our results show that temporary employment is conversely connected with the age, which supports the idea of stepping stones. In addition, temporary workers work less than permanent ones with reference to working time, which reduce their potential wages. The probability of holding FTC is negatively correlated with the trade-union membership.

However, non-permanent workers are more sensitive to the need of strong trade-unions, even if temporary employment is associated with weak presence of trade-unions at work.

Alternatively, past unemployment can be viewed as a period of human capital desaccumulation where the probability of holding a FTC is multiplied by almost 3 if the employer met an unemployment period during the last 5 years. This also is likely to reduce the future probability to find a permanent job.

Finally, estimates from a bivariate probit show that part time employment is often held by native workers while fixed term employment is more devoted to immigrants .However, some points of convergence characterize part-time and fixed-term' contracts. Women are more frequently associated with these two kinds of flexibility. Nonetheless, part-time employment is more feminized than fixed-term contract. Age acts in the same sense, but fixed-term workers are younger than part-time workers. In the two cases, domicile location has no impact on probability to work in part-time or in fixed-term contract

Comparative analysis thus put forward the determinants of temporary employment, although it has been shown that differences between Nordic and southern European countries still remains substantial. This suggests that there are both microeconomic and macroeconomic factors behind such differences. The proposed models focused on the interaction between the institutional framework and the attributes of employers to explain the likelihood of holding a temporary or a part time job. However, this analysis should be improved by including a cost benefit analysis. It would be interesting to explain why it might be rational for workers to renounce to the benefits associated with the investment in specific human capital in exchange for temporary jobs. In addition, future research should also focus on dynamic models using individual level data, as well as on combined micro and macro-level analysis of the flows rather than the stock of temporary work in selected countries.

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ANNEXES:

Table 1: descriptive statistics

	Permanent employment	Fixed-term contracts
Part in the total paid work	81.5	18.5
Gender		
Male	49.0	43.2
Female	51.0	56.8
Citizenship		
Citizen of the country	95.6	95.0
Immigrant	4.4	5.0
Age		
15-24 years	5.4	27.9
25-34 years	16.8	23.2
35-44 years	22.3	17.0
45-54 years	19.0	12.4
55-65 years	17.1	8.9
More than 65 years	19.4	10.6
Children		
No child	57.7	66.6
One child	17.7	14.4
Two children	17.1	12.5
Three children or more	7.5	6.5
Marital status		
Married	59.5	38.2
Separated/divorced	9.4	6.9
Widowed	7.6	5.2
Never married	23.5	49.7
Domicile description		
Big city	16.4	19.5
Suburb or outskirts of big city	17.4	15.3
Town or Small city	29.6	30.5
Rural area	36.6	34.7
Highest level of education		
Not completed primary education	2.1	3.7
Primary or first stage of basic	10.1	11.2
Secondary Education	66.0	64.4
Tertiary Education : first stage	15.8	14.4
Tertiary Education : second stage	6.0	6.3
Classification NACE		
Agriculture, hunting and fishing	2.1	4.5
Extractives and manufacturing industries	6.5	5.2
Other manufacturing industries	10.1	6.3
Manufacturing of electrical and transport equipments	4.8	3.5
Construction and Electricity supply	7.5	7.3
Trade, hotels and restaurants	15.7	18.7

Transport and financial intermediation	10.4	6.6
Real Estate, public administration	16.1	14.6
Education, Health and social work	20.3	22.9
Social, personal services and household activities	6.5	10.4
Part time	16.2	24.9
Membership of trade-union or similar	32.6	21.7
Trade-union at the work place	61.3	53.9
The need of strong trade-unions		
Absolutely agree	28.9	32.6
Agree	47.0	47.7
Neither agree, nor disagree	13.1	12.3
Disagree	9.1	6.1
Absolutely disagree	1.9	1.3
Unemployment Period during the last 5 years	8.9	26.2
The establishment size		
< 10	24.3	33.0
[10 , 24]	18.0	22.1
[25, 99]	23.6	21.2
[100, 499]	18.7	13.6
> 500	15.4	10.1
to what extent organize own work		
Not at all	12.7	18.9
Very little	12.3	16.8
To some extent	26.0	27.8
To a large extent	49.0	36.5
Allowed to decide how the daily work is organized		
No influence	8.3	15.8
Weak influence	13.1	18.8
certain influence	37.5	34.8
Strong influence	41.1	30.6
Total	23,279	5,419

Table 2 Socio demographic determinants of fixed term contracts

Fixed term contract	**Probit**	
	Coefficients	**t-test**
Constant	1.633	11.34***
Gender female	0.123	5.68***
Age	-0.069	-18.40***
Age square (/100)	0.052	13.91***
Citizen of the country	-0.129	-2.20**
Born in the country	-0.094	-2.37**
Household size	0.052	4.90***
Marital status		
Married	Ref.	
Separated/divorced	0.165	4.36***
Widowed	0.124	2.59***
Never married	0.224	7.36***
Children		
No child	Ref.	

One child	-0.115	-3.72***
Two children	-0.182	-4.86***
Three children or more	-0.170	-3.19***
Highest level of education		
Not completed primary education	Ref.	
Primary or first stage of basic	-0.238	-3.64***
Secondary Education	-0.399	-6.32***
Tertiary Education : first stage	-0.480	-7.08***
Tertiary Education : second stage	-0.345	-4.59***
Classification NACE		
Agriculture, hunting and fishing	Ref.	
Extractives and manufacturing industries	-0.519	-7.58***
Other manufacturing industries	-0.634	-9.56***
Manufacturing of electrical and transport equipments	-0.567	-7.61***
Construction and Electricity supply	-0.453	-6.79***
Trade, hotels and restaurants	-0.490	-7.97***
Transport and financial intermediation	-0.607	-9.17***
Real Estate, public administration	-0.455	-7.32***
Education, Health and social work	-0.272	-4.45***
Social, personal services and household activities	-0.155	-2.36**
Domicile description		
Big city	Ref.	
Suburb or outskirts of big city	-0.022	-0.64
Town or Small city	0.033	1.08
Rural area	0.008	0.27
Countries		
Austria	-0.116	-1.88*
Belgium	-0.115	-1.73*
Switzerland	-0.205	-3.25***
Germany	-0.003	-0.06
Denmark	Ref.	
Spain	0.598	9.41***
Finland	0.377	6.60***
France	0.318	4.68***
Great Britain	-0.014	-0.23
Greece	0.261	4.02***
Ireland	0.225	3.65***
Island	0.342	5.40***
Italy	0.117	1.52
Luxembourg	-0.363	-4.56***
Netherlands	-0.027	-0.45
Norway	-0.046	-0.77
Portugal	0.210	3.12***
Sweden	0.149	2.53**
Slovenia	0.240	3.70***
Number of observations	25354	
Number of Fixed-term contract	4874	
Log likelihood	-10518.775	
Pseudo R2	0.1315	

The reported coefficients are estimated from a probit model. The population selected is all wage-earners over 15 years of age. The significance levels are respectively equal to 1% (***), 5% (**) and 10% (*).
Source: ESS 2002-2003

Table 2a: the determinants of temporary employment by country

	1 AT	2 BE	3 CH	4 DE	5 DK	6 ES	7 FI	8 FR	9 UK	10 GR	11 IRL	12 ISL	13 ITL	14 LUX	15 NL	16 NOR	17 PT	18 SWD	19 SLV
FTC	228	183	182	325	201	363	462	219	233	239	289	337	122	120	268	260	227	380	236
Observation	1626	1209	1581	2270	1285	984	1685	826	1696	1045	1237	1112	633	798	1854	1680	999	1724	1096
Log Likelihood	-552	-372	-471	-788	-496	-479	-719	-387	-632	-490	-625	-605	-234	-209	-666	-595	-425	-697	-462
Constant				--		+			---	---		--		--					-
Gender : female		+++				+++	+			+++			+++	+	+++	++	++	+++	
Citizenship		--				---	---		--		---				---		-		
Household size		+++	+++	+					++	+			+					++	
Age																			
15-24 years	+++	+++	+++	+++	+++	+++	+++	+++	++	+++	++	+++		+	+++	+++	+++	+++	+++
25-34 years		+++			++	+++	+++			+++		+++			+++	+++	+++	+++	+++
35-44 years						+				+++		+++		+++	+++	+++	+		
45-54 years		++					+			++		+++					++	+	++
55-64 years	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
65 and more				---															
Marital status																			
Married	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Separated				++			+	+++					++					+++	
Widowed	+++		+++					++											
Never married	+++	+	+++	+++		+	+++	++					+++				+++	+++	+++
children																			
Without	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
1 child		--																	
2 children																--			
3 and more		---	--									-	-						
Level of education																			
Not completed	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Primary						---							++					--	
Secondary	---		---			---	-			---								-	-
Tertiary : 1st			--		-	---	--			--							+	-	---
Tertiary : 2nd	---		-															-	-
Nace																			
Nace0	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Nace 1					---	---			-				---			--	---	--	
Nace 2		--		--	--	---		-					---			---	---	---	
Nace 3		-		---		---			-				---			--	---	---	
Nace 4		--				---							---			-	---	---	
Nace 5		--		--	---	---							--		-	---	---	-	
Nace 6		--		---	--	---		--					---			--	---	---	
Nace 7		-		--		---							---			-	---	---	-
Nace 8						---	+++						---				---	--	
Nace 9		-				---	++						--				--		
Domicile description																			
Big city	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Suburb			--															---	
Town			---									+++					-		
Rural area			---			+			--								-		

The reported coefficients are estimated from a probit model. The population selected is all wage-earners over 15 years of age. The significance levels are respectively equal to 1% (+++/---), 5% (++/--) and 10% (+/-).
The white cells correspond to non-significant variables.
Source: ESS 2002-2003

Table 3 Fixed term contract and work conditions

Fixed term contract	**Probit**	
	Coefficients	**t-test**
Constant	-0.308	-3.25***
Hierarchical responsibility	-0.240	-9.37***
Working time (in hours)	-0.005	-5.89***
Formation	-0.072	-3.02***
Unemployed during the last 5 years	0.544	19.41***
Trade-union membership	-0.245	-10.17***
The establishment size		
< 10	0.013	0.43
[10 , 24]	Réf.	
[25, 99]	-0.119	-3.80***
[100, 499]	-0.166	-4.77***
> 500	-0.174	-4.60***
to what extent organize own work		
To a large extent	-0.258	-7.93***
To some extent	-0.194	-6.22***
Very little	Réf.	
not at all	0.182	4.48***
Number of observations	23211	
Number of FTCs	4522	
LoG Likelihood	-9528.236	
Pseudo R2	0.1378	

The reported coefficients are estimated from a probit model. The population selected is all wage-earners over 15 years of age. The significance levels are respectively equal to 1% (***), 5% (**) and 10% (*).
Age, gender and the years of schooling are included in this regression. Binary variables for each country are also specified.
Source: ESS 2002-2003

Table 4 Part-time employment and fixed term contract

Variables	**Part-time employment**		**Fixed term contract**	
	Coefficients	**t-test**	**Coefficients**	**t-test**
Constant	-0.608	-3.36***	1.145	7.04***
Sex (female)	0.645	25.44***	0.039	1.64*
Age	-0.027	-6.13***	-0.069	-16.51***
Age square (/100)	0.023	5.19***	0.056	13.33***
Citizen of the country	0.256	4.30***	-0.118	-2.22**
Household size	0.069	5.25***	0.056	4.84***
Marital status				
Married	Ref	Ref	Ref	Ref
Separated/divorced	-0.138	-3.38***	0.105	2.56**
widowed	-0.085	-1.65*	0.066	1.25
Never married	-0.172	-4.78***	0.175	5.30***
Children				
No child	Ref	Ref	Ref	Ref
One child	-0.019	-0.56	-0.128	-3.83***
Two children	-0.005	-0.12	-0.184	-4.54***
Three children or more	-0.082	-1.37	-0.172	-2.98***
Highest level of education				
Not completed primary education	Ref	Ref	Ref	Ref
Primary or first stage of basic	-0.011	-0.11	-0.238	-3.12***

Secondary Education	-0.116	-1.32	-0.277	-3.77***
Tertiary Education : first stage	-0.123	-1.33	-0.248	-3.16***
Tertiary Education : second stage	-0.131	-1.31	-0.115	-1.33
Classification NACE				
Agriculture, hunting and fishing	Ref	Ref	Ref	Ref
Extractives and manufacturing industries	-0.348	-3.65***	-0.448	-5.70***
Other manufacturing industries	-0.299	-3.27***	-0.524	-6.93***
Manufacturing of electrical and transport equipments	-0.240	-2.35**	-0.496	-5.89***
Construction and Electricity supply	-0.324	-3.38***	-0.392	-5.15***
Trade, hotels and restaurants	0.253	3.13***	-0.443	-6.30***
Transport and financial intermediation	0.007	0.08	-0.496	-6.56***
Real Estate, public administration	0.045	0.54	-0.318	-4.47***
Education, Health and social work	0.601	7.45***	-0.135	-1.92*
Social, personal services and household activities	0.411	4.86***	-0.100	-1.34
Domicile description				
Big city	Ref	Ref	Ref	Ref
Suburb or outskirts of big city	0.041	1.05	0.009	0.23
Town or Small city	0.004	0.11	0.030	0.90
Rural area	-0.024	-0.68	0.006	0.17
Additional time	0.009	8.97***	-0.002	-1.52
Unemployed during the last 5 years	0.049	1.45	0.615	21.16***
Trade-union membership	-0.167	-6.49***	-0.150	-5.94***
Hierarchical responsibility	-0.475	-17.56***	-0.220	-8.44***
The establishment size				
< 10	Ref	Ref	Ref	Ref
[10 , 24]	-0.198	-6.21***	0.020	0.65
[25, 99]	-0.212	-6.81***	-0.086	-2.77***
[100, 499]	-0.335	-9.28***	-0.101	-2.88***
> 500	-0.473	-11.24***	-0.101	-2.58**
to what extent organize own work				
To a large extent	Ref	Ref	Ref	Ref
To some extent	-0.030	-1.18	0.032	1.26
Very little	0.064	1.84*	0.236	7.11***
not at all	-0.028	-0.65	0.381	9.70***
Countries				
Austria	Ref	Ref	Ref	Ref
Belgium	0.060	0.92	0.014	0.20
Switzerland	0.104	1.78*	-0.022	-0.34
Germany	-0.036	-0.65	0.052	0.87
Denmark	-0.085	-1.33	0.175	2.61***
Spain	-0.578	-7.17***	0.516	7.36***
Finland	-0.514	-7.98***	0.555	9.14***
France	-0.321	-4.18***	0.335	4.68***
Great Britain	0.246	4.32***	0.127	2.03**
Greece	-0.730	-9.43***	0.280	4.12***
Ireland	0.007	0.11	0.407	6.31***
Island	0.019	0.29	0.462	6.88***
Italy	-0.298	-3.43***	0.073	0.85
Luxembourg	-0.137	-1.71*	-0.258	-2.93***
Netherlands	0.461	8.38***	0.167	2.70***
Norway	-0.028	-0.47	0.137	2.18**
Portugal	-0.876	-10.16***	0.265	3.62***
Sweden	-0.234	-3.76***	0.281	4.49***

Slovenia	-0.957	-10.41***	0.371	5.44***
Number of part-time workers	5181			
Number of fixed-time contract workers			4522	
Nombre of observation	23211			
Corrélation coefficient (t-test)	0.126*** (7,67)			
Log likelihood	-17496.846			

The reported coefficients are estimated from a bivariate probit model. The population selected is all wage-earners over 15 years of age. The significance levels are respectively equal to 1% (***), 5% (**) and 10% (*). Age, gender and the years of schooling are included in this regression. Binary variables for each country are also specified.

Source: ESS 2002-2003